

Notice of Allowability

Application No.

09/476,092

Examiner

Naghmeh Mehrpour

Applicant(s)

SORRELLS ET AL.

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to remark filed on 10/05/06.
2. ☒ The allowed claim(s) is/are 1-22, 26-28.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 11/0706, 07/13/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed reference listed in the information Disclosure Submitted on 7/13/06, 11/07/06 have been considered by the examiner (see attached PTO-1449

Allowable Subject Matter

2. **Claims 1-22, 26-28,** are allowed

Regarding **claims 1, 6, 12, 26**, the present application teaches a method /system and apparatus for directly down-converting FM signals to demodulated baseband information signals that can be used to directly down-convert analog FM signals and digital FM signals to demodulated baseband information signals. In an embodiment, the method includes aliasing an FM signal at an aliasing rate substantially equal to the frequency of the FM signal or substantially equal to a sub-harmonic thereof; adjusting the aliasing rate in accordance with frequency changes on the FM signal to maintain the aliasing rate substantially equal to the frequency of the FM signal, and outputting a demodulated baseband information signal. The method optionally includes compensating for phase delays and/or other characteristics of the loop in order to maintain bandwidth and stability for the loop.--a down-convert a frequency modulated cy as specifically mentioned on claims 1, 6, 12, 26.

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The closest prior art of record to the present application such as Shimamura teaches an FM receiver comprising a carrier wave recovery apparatus of the decision feedback type having analog multipliers of lower dynamic range. The modulated signal is phase detected by comparison with a VCO signal. The analog multipliers receive a signal derived by subtraction of the phase detected signal from the same phase detected signal compared with a reference. That signal is multiplied in an analog multiplier by the phase detected signal or by the signal produced from comparing the phase detected signal with a reference. Shimamura fails to teach a method/system/apparatus for directly down-converting FM signals to demodulated baseband information signals that can be used to directly down-convert analog FM signals and digital FM signals to demodulated baseband information signals. In an embodiment, the method includes aliasing an FM signal at an aliasing rate substantially equal to the frequency of the FM signal or substantially equal to a sub-harmonic thereof; adjusting the aliasing rate in accordance with frequency changes on the FM signal to maintain the aliasing rate substantially equal to the frequency of the FM signal, and outputting a demodulated baseband information signal. The method optionally includes compensating for phase delays and/or other characteristics of the loop in order to maintain bandwidth and stability for the loop.--a down-convert a frequency modulated cy as specifically mentioned on claims 1, 6, 12, and 26.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. Any responses to this action should be mailed to:

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Naghmeh Mehrpour whose telephone number is 571-272-7913. The examiner can normally be reached on 8:00- 6:00.

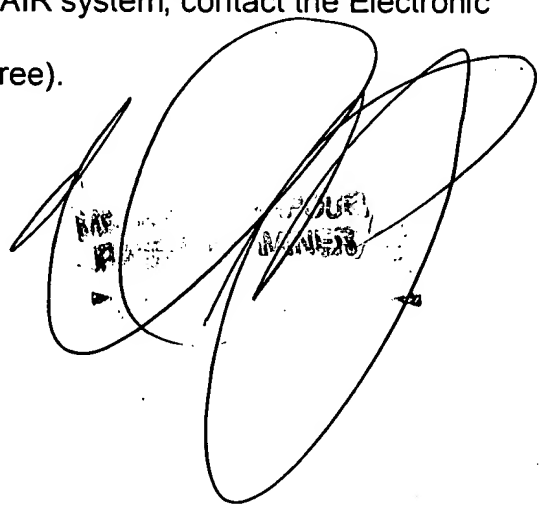
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold be reached (571) 272-7905.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NM

December 12, 2006

A handwritten signature in black ink is written over a rectangular official stamp. The stamp contains the text "PAIR" and "EBC" in a stylized font. The signature is a large, fluid, cursive-style mark.